

What is claimed is:

1. A sampling system for integrated proportional sampling of a fluid stream, comprising

- (a) at least one syringe-type sample container having an inlet and outlet at one end thereof and a piston therein displaceable to fill and discharge said container;
- (b) means for connecting the inlet of said sample container to said fluid stream, for withdrawing samples to said container;
- (c) flow sensor means positionable in said fluid stream for continuously measuring the flow rate of said fluid stream and providing a continuous first control signal varying in accordance with said measured flow rate;
- (d) piston drive means for withdrawing said syringe piston at a rate in accordance with said first control signal; and
- (e) limit means for stopping the withdrawing displacement of said piston at a predetermined end point in its axial movement;
- (f) said sample container being coupleable and uncoupleable as a unit from said stream connecting means and said piston drive means, for permitting said sample container to be transferred and interconnected for discharge to a sample analyzer while maintaining the collected sample intact between

said inlet and outlet and said piston, and thereby out of contact with ambient air.

2. A system in accordance with claim 1, further including means for maintaining the temperature of said collected sample at a predetermined value.

3. A system in accordance with claim 1, including timer means for initiating sampling.

4. A system in accordance with claim 1, further including means for operator setting an initial nominal period of sampling time.

5. A system in accordance with claim 4, further including means responsive to said first control signal, for stopping sampling when said signal falls below a predetermined threshold value.

6. A system in accordance with claim 1, wherein said piston drive means includes a stepping motor connected to displace said piston in accordance with the output of said motor; and means for providing drive pulses to said motor at a rate proportional to said first control signal.

7. A system in accordance with claim 6, wherein said drive means includes a carriage connected to said piston and driven by said stepping motor.

8. A system in accordance with claim 7, wherein said sample container is one of a plurality of sample containers, each being driven in parallel by said stepping motor and said carriage.

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